## REMARKS

Claims 1-23 are pending in the present application. Reconsideration of the claims is respectfully requested.

### I. Examiner's Interview of Oct. 16, 2003

Applicant respectfully refers Examiner to the telephone interview conducted on October 16, 2003, wherein it was agreed that the rejection under 35 USC 112 first paragraph was improperly applied to claims 8, 11, and 12. Examiner instructed Applicant to "ignore" that rejection and to refer to the interview in the response.

### II. 35 U.S.C. § 112, First Paragraph

The Examiner has objected to the specification under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention in claims 8, 11, and 12.

Applicant respectfully refers Examiner to the interview described in section I, above, where it was agreed that this rejection was improper. Applicant respectfully submits that claim 8's elements, including, "wherein the bus system includes a primary bus and a secondary bus" is enabling. This claim language is supported in the specification at, for example, page 8, lines 5-26, which describes multiple busses, including an expansion bus and a PCI local bus.

Claim 11's limitation of, "wherein the communications unit is an Ethernet adapter," is also enabling, as agreed by the Examiner in the telephone interview.

Finally, claim 12's language of, "wherein the processor unit and memory is located in a graphics adapter," is also enabling. For example, Examiner states in the office action on page 12, "Note: most of graphics adapters are equipped with processor unit and memory chips." Hence, it is respectfully submitted that claim 12 is enabling, as agreed in the interview referenced above.

Therefore, the objection of the specification and claims 8, 11, and 12 under 35 U.S.C. § 112, first paragraph has been overcome.

## III. 35 U.S.C. § 102, Anticipation

The examiner has rejected claims 1-7, 13-18, 19-20, 22, and 23 under 35 U.S.C. § 102 as being anticipated by Warren et al., US patent no. 6,304,300. This rejection is respectfully traversed.

> "A method in a data processing system for antialiasing lines for display, the method comprising: receiving graphics data for display, wherein the graphics data includes primitives defining lines; applying a gamma correction to the graphics data on a per primitive basis to form the antialiased lines, wherein the gamma correction is applied only to the primitives defining lines; and displaying the antialiased lines", as applicant in the specification page 2, lines 5-10, discloses a primitive is a graphics element that is used as a building block for creating images, such as, a point, a line, a polygon, or text. Warren et al. in Fig. 9 and in (col. 10, lines 51-54) teach the pixel data is then sent to the rasterization unit 906, where Z-buffering, blending, texturing, and antialiasing functions are performed. And also discloses in abstract that the gamma correction curve table includes a specified total number of intensity levels associated with gamma corrected pixel values with one intensity level per pixel value. The method includes partitioning the gamma correction curve table into N segments such that each of the N segments is associated with a set of intensity levels from the specified total number of intensity levels. Also see (col. 9, lines 44-65) The geometry unit 902 converts the graphical data from the processor 804 into a screen coordinate system and performs rejection and transformation processes to give depth to a displayed object. The resulting primitives (points, lines, polygons, polyhedra, and the like) supplied by the geometry unit 902 are then provided to the scan conversion unit 904.

### Analysis

**1. The cited reference teaches away from the present claims, and does not teach or suggest applying a gamma correction only to primitives defining lines, as claimed.**

Claim 1 is reproduced for reference:

1. A method in a data processing system for antialiasing lines for display, the method comprising:

receiving graphics data for display, wherein the graphics data includes primitives defining lines;

applying a gamma correction to the graphics data on a per primitive basis to form the antialiased lines, wherein the gamma correction is applied only to the primitives defining lines; and

displaying the antialiased lines.

[Emphasis added.]

It is respectfully submitted that the cited reference (Warren et al.) does not teach or suggest applying a gamma correction to the graphics data on a per primitive basis to form the antialiased lines, as claimed. Further, it is respectfully submitted that Warren does not teach the claimed limitations of, "wherein the gamma correction is applied only to the primitives defining lines," as claimed in at least claim 1.

Warren explicitly teaches away from the present invention, because it teaches that gamma correction is applied to all primitives. To the contrary, the present invention teaches that gamma correction is applied only to primitives defining lines.

There are several advantages to the present invention not obtained from the teaching of Warren. For example, by applying gamma correction to all primitives, color intensity dampening occurs, as is typical in gamma correcting systems. Further, by not applying gamma correction to all pixels, and by only applying it to primitives that define lines, computational advantages are gained by the teaching of the present invention. Warren, however, explicitly teaches away from such advantages by teaching that gamma correction is applied to all pixels, regardless of the resulting primitive.

Warren is directed to a system for partitioning a gamma correction table into segments, each segment corresponding to a particular intensity level or range of intensity levels. For example, col. 3, lines 9-26, state:

> The gamma correction curve table includes a specified total number of intensity levels associated with gamma corrected pixel values, with one intensity level per pixel value. The method includes partitioning the gamma correction curve table into N segments such that each of the N segments is associated with a set of intensity levels from the specified total number of intensity levels. A plurality of intensity levels is selected for each of the N segments. The intensity levels are preferably selected such that significant banding effects are not visible to the human eye between an adjacent pair of selected intensity levels. The gamma corrected pixel values are stored for each of the N segments such that each of the plurality of selected intensity levels functions as an index to the associated gamma corrected pixel values. Gamma correction is performed on the set of pixel data by accessing a stored pixel value in one of the N segments in response to the pixel data, to generate gamma corrected pixel data.

This passage depicts a gamma correction table with multiple segments, but it does not teach the claimed limitation of, "wherein the gamma correction is applied only to the primitives defining lines," as claimed in at least claim 1. To the contrary, it appears that Warren, like other conventional gamma correction systems, applies gamma correction to all pixel values and not just to those forming lines. In other words, the segmented gamma correction table of Warren applies its correction to all pixels, thus failing to achieve the advantages of the present invention, which include avoiding color intensity dampening that occurs with typical gamma corrections. It also fails to obtain the computational advantages of not applying gamma correction to all pixels.

Examiner cites Warren at FIG. 9 and col. 9, lines 44-65. Col. 10 describes FIG. 9, and is partially reproduced here, at col. 10, lines 44-65:

> FIG. 9 illustrates a more detailed block diagram of the graphics subsystem 812 in accordance with one embodiment of the present invention. The object data is processed by graphics subsystem 812 in the following pipelined stages: a geometry unit 902, a scan conversion unit 904, a rasterization unit 906, a frame buffer 908, and a display unit 910. The geometry unit 902 covers the graphical data from the processor 804 and into a screen coordinate system and performs projection and transformation processes to give depth to a displayed object. The resulting primitives (points, lines, polygons, polyhedra, and the like) supplied by the geometry unit 902 are then provided to the scan conversion unit 904. The scan conversion unit 904 generates pixel data based on the received primitives by interpolating straight lines so that each intermediate value need not be individually and separately calculated by the geometry subsystem. The pixel data is then sent to the rasterization unit 906, where Z-buffering, blending, texturing, and antialiasing functions are performed. The resulting pixel values are

> subsequently stored in the frame buffer 908. The display unit 910 reads the frame buffer 908 directly or via a rasterization unit 906 and transmits the pixel values to the display device 822 for display.

[Warren, col. 10, lines 44-65.]

This passage depicts Warren's graphics subsystem, but fails to disclose or suggest the limitations of claim 1, namely, "wherein the gamma correction is applied only to the primitives defining lines...." This feature is mentioned in the present disclosure, for example, at page 12, lines 1-5:

> The mechanism of the present invention avoids color intensity dampening that occurs with presently available techniques by applying gamma corrections only to the pixels generated for the line by rasterization engine 308.

No teaching or suggestion that gamma correction is only applied to pixels, fragments, or primitives that are part of a line is found in Warren.

Hence, it is respectfully submitted that claim 1 is distinguished form the cited reference. Further, independent claims 7, 13, 19, 20, and 22 include limitations similar to claim 1, and are thereby respectfully believed distinguished from the cited reference. Also, because of their dependence on allowable claims, it is respectfully submitted that all dependent claims are allowable. Specific dependent claims are discussed below. Favorable reconsideration of the claims is respectfully requested.

**2. Claims 8, 11, and 12 have not been rejected over any prior art.**

Claims 8, 11, and 12 were originally rejected under 35 USC 112 first paragraph. Because of the result of the interview referenced above, all rejections of these claims have been addressed, and no prior art has been cited against them. Therefore, it is respectfully submitted that claims 8, 11, and 12 are allowable.

## IV. Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

DATE: 10.21.03

Respectfully submitted,

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